SHOUT
SHARE
IT

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

UNITED STATES DEPARTMENT OF AGRICULTURE

BULLETIN No. 558

Contribution from the Office of Markets and Rural Organization
CHARLES J. BRAND, Chief

Washington, D. C. July 28, 1917

MARKETING GRAIN AT COUNTRY POINTS

By

GEORGE LIVINGSTON and K. B. SEEDS,
Specialists in Grain Marketing

CONTENTS

	Page
Introduction	1
Function of the Country Elevator	2
Methods of Purchase	6
Methods of Sale	11
Place of Sale	12
Price Paid to the Producer	16
Transient and Permanent "Scoop-Shovelers"	21
Contracting with Farmers for Future Delivery	23
Storing Grain for Farmers	25
Farm Storage	27
Handling Grain for Farmers	29
Advantage of Growing Uniform Varieties	30
Farm and Elevator Scales	31
Supply of Elevators	33
Cost of Operating a Country Elevator	34
Hazards of the Country Elevator Business	37
Farmers' Cooperative Associations	41
Conclusions	42

WASHINGTON
GOVERNMENT PRINTING OFFICE
1917

UNITED STATES DEPARTMENT OF AGRICULTURE

BULLETIN No. 558

Contribution from the Office of Markets and Rural Organization

CHARLES J. BRAND, Chief

Washington, D. C. July 28, 1917

MARKETING GRAIN AT COUNTRY POINTS.

By GEORGE LIVINGSTON and K. B. SEEDS,
Specialists in Grain Marketing.

CONTENTS.

	Page.		Page.
Introduction	1	Farm storage	27
Function of the country elevator	2	Handling grain for farmers	29
Methods of purchase	6	Advantage of growing uniform varieties	30
Methods of sale	11	Farm and elevator scales	31
Place of sale	12	Supply of elevators	33
Price paid to the producer	16	Cost of operating a country elevator	34
Transient and permanent "scoop-shovelers".	21	Hazards of the country elevator business	37
Contracting with farmers for future delivery.	23	Farmers' cooperative associations	41
Storing grain for farmers	25	Conclusions	42

INTRODUCTION.

The need for definite knowledge of methods and costs of marketing grain at country points has led the Department of Agriculture, through the Office of Markets and Rural Organization, to undertake a comprehensive study of the subject. The need for such information has found expression chiefly from three sources: (1) The grain trade of the Middle West, both at country points and at central markets, as well as the farmers of this section; (2) producers and merchants located in the cotton belt, in some parts of which a grain surplus has existed for the first time during the last two years, the successful marketing of which is handicapped by inadequate handling facilities; (3) producers and dealers of the Pacific slope, where the process of transition from the present method of handling grain in bags to the more modern and efficient bulk system, used in the Middle West, is demanding serious consideration.

In order to contribute toward the information needed a general survey of the grain-handling methods in vogue in the surplus-

NOTE.—This bulletin should be of interest to producers, shippers, dealers, and consumers of grain and grain products throughout the United States.

93179°—Bull. 558—17——1

producing grain States of the Middle West was undertaken during the year 1915. Producers, officers and members of grain exchanges at terminal points, managers and owners of country elevators, including cooperative, independent, and "line" elevators, together with the officers of their associations, were interviewed at length, and extended studies were made of methods and costs of marketing grain at country points.

Such a vast amount of information has been obtained that only a general summary of existing conditions will be attempted in this bulletin. It is probable, however, that certain features, of necessity discussed more or less briefly at this time, will be made the subject of future publications.

FUNCTION OF THE COUNTRY ELEVATOR.

In the grain belt the local elevator occupies an important position in the life of the rural community. The importance of the several functions of the elevator varies considerably in different sections of the country.

PROVISION OF LOCAL MARKET.

The primary function of the country elevator is to provide a local market for the surplus grain of the community. It is the practice in many places for the elevator to remain open throughout the year, thus affording the producer, or others having grain for sale, an opportunity to dispose of it on any business day of the entire year. This everyday market is an important, though not always appreciated, privilege which affords the farmer wide opportunity in the marketing of his crop. It enables him to sell his grain at the time when, in his judgment, the price is the most favorable or to market at a time when it interferes least with other farm operations of greater concern than market-value fluctuations.

SEASON FOR MARKETING.

In newly developed sections of the country where capital is limited and the production and marketing of grain forms a major portion of the farming operation, the grain is usually marketed immediately after harvest. Almost all the grain which leaves these farms, therefore, is received by the elevators during a period of a few months. In fact, in territories where this system of immediate marketing prevails, many managers close the elevators during the remaining eight or nine months of the year, thus automatically prohibiting farmers who do not wish to sell their grain at harvest time from the full privilege of a local market throughout the year.

When such a community is supplied with several elevators, one or two of them sometimes remain open for business, which provides a

local market at all times. Usually, however, elevators remaining open profit to a less degree than those operating during the harvesting and marketing periods only. The latter are not burdened with excess operating expenses, such as salaries, fuel, light, etc., during that portion of the year when comparatively little grain is received, while the houses kept open throughout the season rarely receive enough grain during the postmarketing season to compensate for the cost of operation. Neither do the latter houses distribute the cost of operation on a per-bushel basis, because the price paid for grain during the heavy marketing season is fixed by competitive houses, which establish their figure upon the short-season basis. If the house open throughout the year attempted to lower prices during the heavy marketing season in order to accumulate a surplus fund for the purpose of meeting operating expenses during the remainder of the year, little grain would be received, because the farmer would sell to the highest bidder, which would be the short-season house. If, however, the house open throughout the year is able to purchase a considerably larger volume of grain during the heavy marketing period than its short-season competitors, it may be in a position to pay the same price, and, on account of the increased volume, to make a proportionately greater profit, thus providing for operating expenses for the remainder of the year. Sometimes side lines are carried to offset the difference in operating expense. It would seem that price and other factors being equal, the houses that seek to operate throughout the year should be encouraged.

COLLECTION AND STORAGE OF GRAIN.

Unless the country elevator is operated in connection with a mill or some other manufacturing plant, it does not consume the commodities received from the producers, but functions only as a collecting point from which the grain is started to larger marketing centers or to manufacturer and consumer. Such a collecting and shipping point, if operated economically, is undoubtedly a great convenience to a community. In the absence of such a local market the producer is forced to dispose of his surplus grain at distant points, thus entailing inconveniences and marketing hazards. Hence, to serve as a collecting point for the surplus grain of a community, furnishing at the same time the most direct route to a favorable market, is an important function of the country elevator.

The country elevator also serves as a temporary storage place where small lots of grain delivered by the various producers are collected until a volume is accumulated sufficiently large for economical sale and transportation. In communities where a comparatively small quantity of a certain variety of grain is marketed, several weeks

may be required to accumulate a car-lot shipment. In such instances it is necessary for the country elevator to provide facilities for separate storage of this grain, which makes the cost of handling excessive. Often the prospect of a more favorable future market apparently warrants the storing of grain for a considerable period. Frequently country elevators also store grain for farmers who desire to hold their product for a more favorable market.

CLEANING AND CONDITIONING GRAIN.

Some country elevators are provided with equipment for cleaning and conditioning grain. While such equipment is expensive, its use frequently improves the quality of the grain and increases its market value. Sometimes grain comes to the elevator in poor condition, often being dirty, dusty, or with high moisture content, and unless the quality is improved by cleaning or drying, the grain can not be disposed of advantageously. Moreover, grain containing impurities, foreign matter, or a high moisture content is quite likely to become hot in transit, which greatly reduces its value and frequently results in serious financial loss. If the elevator is not provided with suitable equipment for this process such grain must be shipped in the condition in which it is received. The farmer should not place all responsibility for cleaning grain on the elevator. It should be remembered that elevator managers do not pay grain prices for the dirt and water found in a farmer's grain. Rather they establish the price by taking into consideration the necessary expense of placing the grain in marketable condition. The farmer who delivers clean, dry, sound grain should receive a premium over the price paid to his more careless competitor. Farmers who deliver grain of inferior quality should be willing to submit to a discount.

The country elevator in some sections cleans the grain received and returns the screenings to the producers. The screenings are sometimes of considerable value for feeding purposes, selling for as much as $10 to $25 per ton. In sections of the country where wild oats are commonly found mixed with the small grains, from 2 to 40 per cent of the grain delivered at the elevator may consist of screenings. At several stations in North Dakota the "dockage" for the 1914 season crop of wheat averaged 6 pounds per bushel. In other words, the equivalent of every tenth load of grain delivered at the elevator was screenings, for which the farmer received no return unless the elevator was provided with cleaning equipment. Sometimes a charge is made for cleaning, usually from 1 to 2 cents per bushel, bulk weight.

Cleaning equipment is much more important in some sections of the country than in others. Houses provided with cleaning machin-

ery usually have the advantage over competitors not so equipped, for obviously they are the only ones that can handle a low-grade crop and market it in proper condition. Ordinarily the farmer will fare better if he cleans his grain on the farm before marketing and retains the screenings for feed.

HANDLING SIDE LINES.

The sale of coal, salt, cement, and other side lines may not be listed properly as a function of the country elevator, nevertheless many of them seek such patronage. Side lines are handled by the country elevator as a source of additional profit, the exact amount of which depends upon several factors. Generally speaking, the greater the volume of business the less will be the cost per unit for handling; therefore it is necessary to consider the expected volume of business. This will depend upon several things, especially the demand of the consuming trade and the competition from other merchants. The margin demanded by the dealer to cover cost of handling and profit should depend upon whether the commodities are disposed of on a cash or credit basis. A wider margin must be exacted if sold on credit to cover the interest on the increased capital required to finance the business. Moreover, the difficulty experienced in collecting every claim injects a hazard that must be protected. Many country elevators, particularly those of the cooperative associations, have failed to consider the credit losses, and, as a result, the side lines not only fail to yield a profit but frequently suffer an actual loss, which, in turn, is borne by the profit derived from the handling of grain.

Many elevators attempt to do business on too narrow a margin, particularly those which extend credit. Thus, if flour worth $2 per bag is handled on a margin of 10 cents, a common practice, the failure to collect for a single bag counteracts the profits from 20 bags. The important item frequently overlooked in handling side lines on a credit basis is the interest on outstanding accounts. Thus, if $25,000 is invested in an elevator and its equipment and its books show an outstanding credit of $10,000 or $15,000, interest should be charged against the entire amount.

In some sections farmers frequently sell and deliver their grain to the elevator but do not request payment for some weeks. The elevator operator who immediately sells the grain has the use of the proceeds without interest pending settlement with the farmer.

The interest on outstanding credit is an important item to be considered in determining the cost of operating the elevator and in arriving at the profits derived from the business. Frequently the money employed to carry credit accounts is borrowed from the local bank or from other sources at the regular interest rate. The elevator is fortunately situated, in that many of the credit customers are farm-

ers from whose grain account the outstanding obligations may be deducted.

The collection of claims does not influence the interest item in its relation to the cost of operation. The opinion is generally expressed that side lines increase but slightly the cost of operating an elevator, since the grain business requires constant attention only at certain seasons of the year, and both men and equipment may properly be employed in handling them during slack periods. Nevertheless, many elevator managers feel that, unless the volume of business justifies the employment of a force giving its entire time to their management, side lines detract from the success of the grain business.

In certain sections of the country the grain business is conducted as an adjunct to some other enterprise, a bank, grocery, lumber yard, or general merchandise store furnishing the chief source of revenue. When this arrangement prevails the elevator usually is regarded as a collection agency for the principal enterprise. A merchant handling such a side line usually pays relatively high prices for grain, conducting his business on a narrow margin, with little or no profit, but depending upon the customer to expend his surplus money in the purchase of other articles of merchandise on which a larger profit is expected. The advantage of this arrangement, from the viewpoint of the merchant, is in obtaining the good will of the producer through the practice of paying high prices for grain that additional patronage may be secured for the principal line of endeavor. For the producer this arrangement is satisfactory provided he is able to purchase as judiciously from the merchant-grain-dealer as elsewhere. Independent grain dealers in competition with an elevator run on this basis, however, are seriously handicapped, as they are forced to meet the prices paid for grain by elevators which are operated with little or no direct profit.

METHODS OF PURCHASE.

There are several methods open to the farmer when he is ready to dispose of his grain. It may be sold to a local elevator or, if a carload is available, it may be shipped direct to a terminal market, mill, or other consumer. If the grain is marketed locally, it may be sold a load at a time at the prevailing price or arrangements may be made with the elevator operator to sell it at a fixed price, a date being named when delivery must be completed. Sometimes the dealer places the grain in storage until such time as the grower wishes to sell his crop or the farmer may sell it for delivery at some stated time in the future. Regardless of the manner in which a sale is made, the price usually is established in one of four ways: (1) By a flat rate, (2) by grade, (3) by grade subject to dockage, or (4) by grade after cleaning.

PURCHASES AT A FLAT RATE.

If purchased at a flat rate, the buyer takes all of the grain at a fixed price. To do this some knowledge must be had of the quality of a farmer's grain or a sufficiently large margin of profit must be demanded as protection against loss in event of poor quality. Under this system of equal price it is evident that the producer of high-quality grain usually receives less than it is worth.

PURCHASES BY GRADE.

When purchased by grade the price is established for grain of a certain quality. In case the grain delivered is of a lower grade, either because the grain itself is inferior or on account of the presence of dirt, a definite amount is deducted from the price. In the past the grades of the small grains have been determined principally by the test weight per measured bushel, but in some instances other factors, such as excessive moisture, must, smut, damaged and sprouted grains, were also considered. Each of these factors has a definite weight in the grades which are being fixed by the Secretary of Agriculture under the United States grain standards act and will probably be considered more carefully in the future.

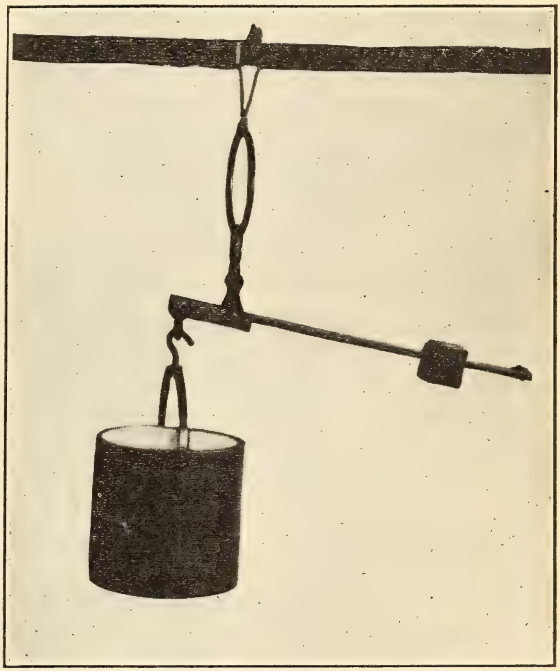

FIG. 1.—Hand tester commonly used at country elevators.

MAKING TEST WEIGHT.

Farmers generally understand the use of the test weight per bushel, but have no means of knowing all of the other considerations, so for fear of offending the customer the buyer frequently pays more for damaged grain than it is worth, adjusting the loss by a corresponding reduction in the price paid for better grades. The method of mak-

ing a test weight varies widely at different elevators. Usually, however, it is made with a hand scale (see fig. 1), which has a kettle holding one or two quarts, the beam being graduated to read direct in pounds per bushel. The weight can be varied considerably by the manner in which the kettle is filled. Often it is merely dipped into the grain. Again it is partly buried and the grain scooped in over the sides with the hands, or the grain may be poured into the kettle from varying elevations, either a handful at a time or in a constant stream. In removing surplus grain (in order to level the kettle) an instrument is sometimes used that tends to pack it into the kettle. Frequently the kettle is jarred to settle the grain before the surplus is struck off, while in many places the beam of the scale is used for striking off the surplus, and this eventually wears the edges to such an extent that inaccurate weights are obtained. Thus, unless a uniform method of making the test prevails, there is opportunity for considerable variation in the test weight of the same sample.

The department has now adopted, in connection with the enforcement of the United States grain standards Act, a standard method and apparatus for determining the test weight of grain, which is being used generally.[1]

VARIATION IN TEST WEIGHT.

During the summer of 1915, 154 samples of wheat, oats, and rye were taken at various elevators in the grain belt, and the elevator operators were requested to supply the test weights as ascertained by them. The samples were then placed in air-tight containers, shipped to the Office of Markets and Rural Organization, and the test weight at once determined with a scale similar to the one used in the standard method adopted by the Department of Agriculture.

The number of samples taken was not sufficient to justify exact conclusions, but the results obtained indicate that there is considerable variation.

Only 10 of the 154 samples showed a higher test weight here than at the country elevator, the maximum difference being 4.5 pounds. Sixteen samples showed no difference, while 128 tested lower here than at the elevator, the greatest variation being 6.5 pounds. The average of the test weights obtained at this office was 1.34 pounds lower than the average of the test at country elevators.

The country dealers frequently allow the test weight that is shown when the poise is moved far enough on the beam to bear it down (as in fig. 1), while the inspectors at terminal markets use the weight shown when the beam balances, or at the nearest half-pound fraction before that point. In this way the farmer frequently secures the

[1] Boerner, E. G. Improved apparatus for determining the test weight of grain with a standard method of making the test. United States Department of Agriculture, Bulletin 472, 1916.

advantage of one-half pound or more in the test. In an effort to offset these losses some elevator operators, where the grade of wheat used as a standard calls for a test weight of 59 pounds, purchase the wheat on the basis of a test weight of 60 pounds.

VARIATION IN GRADE.

Deductions are nearly always made when the grain delivered is not equal to the grade contracted, but out of 163 elevators from which data on the subject were obtained only 50 paid a premium to the farmer when the grain delivered was of a higher grade than that commonly purchased. At the remaining 113 elevators the farmer with grain of exceptional quality realized nothing additional for it, any premium which the grain should command being either added to the profits of the buyer or used in equalizing excessive prices paid for inferior grain.

While some attempt at least is made to buy wheat, oats, and other small grains by grade at nearly all points, until recently almost no effort has been made to purchase corn in this manner, the same price being paid for all corn received, regardless of variation in any of the factors contributing to the grade, including color, moisture content, and the percentage of dirt and damaged grains. This method of paying for grain does not offer many inducements to the farmer to handle his grain properly.

Yield and other factors being equal the farmer should grow corn of the color commanding the best price in his market; of a variety showing a low moisture content when properly cared for; should harvest and store his crop in a manner insuring a low percentage of moisture and damaged grain; and should insist, in return, that the dealer pay him for the superior quality of his grain. Samples of corn taken during the fall of 1915 indicated that the dealers were paying the same price for corn ranging anywhere from 19.4 to 25.1 per cent of moisture and containing from a trace to 7 per cent of damaged grain. In one instance a dealer in Ohio paid the regular price for a load containing 23.4 per cent moisture and 6.5 per cent damaged grain, mixing it and other similar loads with other corn of the same color. The carload shipments tested from 21 to 22 per cent moisture at a near-by mill, so it is evident that the shipper was obtaining some corn testing close to 19 per cent. On the day that this load of corn was bought, the elevator manager was paying 50 cents per bushel. He was offered 60 cents on track for corn guaranteed to arrive cool and sweet at New England points, but because of the high percentage of moisture and damaged grain present, it was sold to a near-by mill at 54 cents. It is apparent that if the corn of good quality had been kept separate it might have been sold on the New England bid without assuming any great risk. The near-by mill, which

was equipped with driers, would have purchased the remainder at a very small reduction from the price obtained for the entire lot. If the dealer had kept the better corn separate he could have paid the farmers who marketed good corn considerably more and would not have been compelled to discount the poor corn very heavily. Other dealers were taking yellow, red, white, and white-cap corn all at the same price, although they were selling white and mixed corn at 3 cents under the price of yellow.

PURCHASE BY GRADE SUBJECT TO DOCKAGE.

By this method the quantity of foreign matter in a sample of the grain is determined by the aid of screens. Settlement is then made on the basis of the weight and grade of clean grain. The dockage system of buying has this advantage over buying by grade without the determination of dockage; a definite deduction is made to cover the weight of the dirt and weed seed in the grain, rather than leaving it to the guess of the buyer. As with the test weight, however, errors are possible in ascertaining the dockage. The method possesses the apparent disadvantage of not allowing the seller anything for screenings, which, in some cases, could be used advantageously for feeding on the farm. Usually, however, the value of the foreign material is taken into consideration in arriving at the price paid for the grain. Grades for wheat established by the department under the United States grain standards Act are made on a dockage basis.[1]

PURCHASE BY GRADE AFTER CLEANING.

In some sections elevators are equipped with machinery which cleans the grain before it is weighed; the screenings are returned to the farmer, and settlement is made for the weight and grade of the cleaned grain. It is a rather surprising fact that this method is not used more widely than it is at the present time, for while one of the first machines for this purpose were first installed over 20 years ago, the practice is still confined to a relatively small territory. On the whole, it would seem better for farmers either to provide themselves with machinery for cleaning the grain properly on the farms before it is marketed or for the country elevators to adopt more generally the method of cleaning the grain and returning the screenings to the farmers before weighing and grading.

DIRECT SHIPMENT BY THE PRODUCER.

If the farmer prefers to ship his grain rather than to dispose of it at the local market, the conditions confronting him are similar to those surrounding the country elevator, except that instead of having fairly adequate machinery for loading the grain into cars he usually must shovel it from the wagons into the cars or purchase a portable elevator. The farmer should endeavor to ship at least a

[1] U. S. Department of Agricultrue. Office of Markets and Rural Organization. Service and Regulatory Announcements No. 22, 1917.

minimum carload, for he will be compelled to pay freight on at least that amount in any event. This minimum varies in different parts of the country, and the railroad agent should be consulted regarding the precise minimum weight for a carload.

METHODS OF SALE.

When the country-elevator operator is ready to market his grain it may be sold "on track" or "to arrive," or it may be "consigned." Possibly its disposition may have been effected some months in advance by a sale for future delivery.

SALES "ON TRACK" AND "TO ARRIVE."

In nearly all sales "on track" or "to arrive," the price, usually a definite one, is fixed before shipment is made. In the case of an on track sale the buyer pays freight charges, the seller meeting them if the shipment is sold to arrive. The seller, in on track or to arrive sales to interior mills or dealers at points where there is no inspection usually has no other charges to meet, with the possible exception of a bank exchange fee, which is sometimes charged on drafts. In such cases it is customary for the buyer to pay the exchange on on track sales and the seller on sales to arrive. It is also understood, unless the contract of sale specifically provides otherwise, that the shipper guarantees the condition and weights of the grain at destination in a to arrive sale, but in the case of an on track sale he guarantees simply that the weight and grade loaded into a car agrees with the terms of the contract and bill of sale.

In the case of shipment to a terminal market, the consignor, in addition to paying the freight on a to arrive sale, also pays the weighing and inspection charges, and, in some instances, pays interest on draft against the shipment. There are other charges which it is customary for the shipper to meet in certain markets. If the seller in making a sale on track guarantees the weight and grade of the shipment to a market, it is usual for him to pay charges incidental thereto as in a to arrive sale.

In sales to arrive or on track a specified time of shipment such as 3, 5, 10, or 15 days usually is fixed, and shipment must be made within that period. In other instances, terms of to arrive sales call for a specified delivery at destination in the same manner. At times shippers make on track or to arrive sales for delivery some months in the future. Shippers, for example, sell new corn in July and August for shipment in November and December. This practice is not to be generally commended or encouraged, because of the likelihood of future misunderstandings. However, when dealers make future delivery contracts with farmers for their grain it affords them a method of protection against loss on such purchases. In considering either to arrive or on track sales, it must be understood that there are numerous ways in which these contracts may be modified. The

Grain Dealers' National Association has adopted uniform trade rules and a standard form of contract, while many of the terminal markets have similar regulations. To avoid misunderstandings, both buyer and seller should insist on the exchange of written agreements clearly setting forth the terms of sale.

CONSIGNMENTS.

When the grain is consigned to a commission merchant at some terminal market it is, in accordance with the shipper's wishes, either sold by the merchant upon arrival or stored in an elevator or held in cars pending further instructions. After final disposition the commission merchant renders an account sale, which sets forth the gross amount received for the car, amount of his commission (usually from one-half to 1 cent per bushel, varying with the market and variety of grain), freight charges, and weighing and inspection fees, together with the interest on any money advanced on the shipment. In some markets there are still other charges, such as switching or elevator fees, in case the grain has to be cleaned, dried, or stored. Any balance due the shipper not covered by amount of draft advanced is then remitted.

RELATIVE USE OF METHODS.

From information obtained from various elevators in the surplus-grain States of the Middle West during the year 1915, it appears that approximately 50 per cent of the grain received was sold on track; 29 per cent to arrive; and 21 per cent consigned. In Minnesota and the other grain States of the Northwest nearly all of the shipments from the elevators reporting were consigned, while in States east of the Mississippi over 75 per cent was sold on track, the remainder being about equally divided between sales to arrive and consignments. In Texas and Oklahoma over 50 per cent was sold to arrive and most of the remainder was sold on track, these States consigning very little. The proportion consigned as compared with the amount sold on track or to arrive increased with great regularity from the eastern and southern portion of the grain belt toward the Northwest. Experience and observation show that these proportions will vary somewhat each year in accordance with the condition of the crop, a larger proportion being consigned when the quality is poor than when good. This is due to the fact that when the quality is generally poor a car of good grain frequently is sold at an exceptional premium, while it is impossible to tell what a poor quality is worth by description and a better price can usually be obtained by consigning it to a large market, where all classes of buyers will have an opportunity for examination before bidding for it.

PLACE OF SALE.

Usually consignments are made either to commission merchants at terminal points or to small market brokers, the latter ultimately

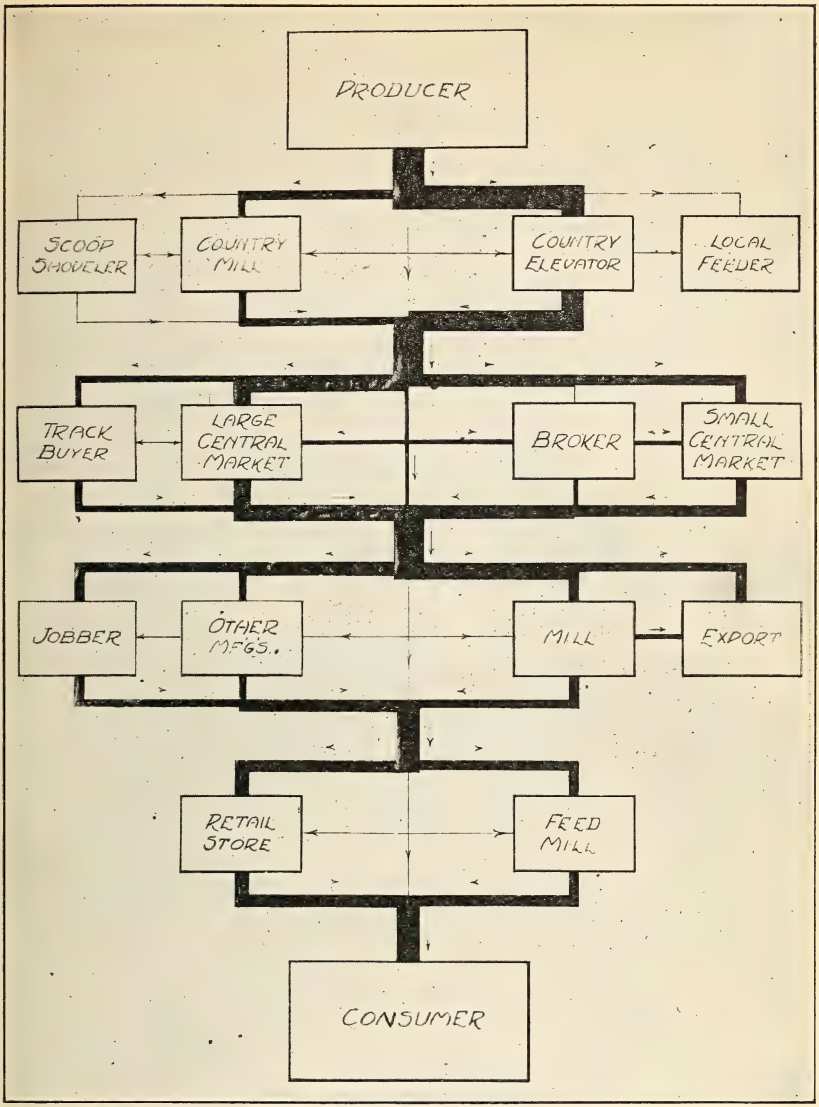

FIG. 2.—Principal channels for distribution of grain and grain products.

The purpose of this diagram is to list the important agencies handling grain and grain products and, in so far as it is possible by means of a diagram, to show their natural relationship to each other and to the producer and consumer. The width of the line leading to and from each agency indicates in a general way the comparative volume of trade passing through this channel, the arrow indicating the direction of the movement. Commercial intercourse between coordinating agencies is indicated by cross lines. In some instances transactions may take place between agencies in the reverse order in which they are listed, thus bringing about what appears from the diagram to be a backward movement. Such transactions, however, are infrequent and do not influence the general direction of the movement to any great extent. The diagram is not intended to show any precise or sharply defined routes traveled by grain in passing through the channels of trade from producer to consumer, nor is it intended to show the relative merit or value of the service contributed by the several agencies to the present system of grain marketing.

disposing of the shipments to local dealers. Sales to arrive or on track may be made direct to buyers at terminal markets, millers, retailers, or consumers, or the services of a broker may be utilized in securing the attention of desirable purchasers (see fig. 2). Grain may also be sold to country track buyers at near-by points, or to carload jobbers in consuming territory.

When a sale is effected through a broker, he may act either as the agent of the buyer or the seller, usually, however, in the latter capacity. A commission usually varying from one-eighth to one-half cent per bushel is paid for his services. In communities where large numbers of buyers congregate it is evident that the broker, by reason of his more intimate knowledge of the conditions in his particular market, is often in position to secure better prices for the grain than his client could possibly hope to attain.

TERMINAL-MARKET BUYERS.

The terminal-market buyer either purchases his supply of grain from commission merchants upon the floor of the exchange or direct from outside shippers, subject to the weights and inspection of his market. To the shippers he usually submits to arrive or on track bids by mail or telegraph after the close of each day's market. These offers or bids may be accepted at any time previous to the opening of the market on the following day. The country dealer soon learns that his drafts usually will be met promptly by the terminal market, and also, after a little experience, he knows how his weights will compare with the terminal weights. Purchasers when trading at terminal markets have similar advantages with respect to weights; also, since large quantities of grain usually are held in the elevators at terminals, in most instances dealers are able to make shipments in accordance with the buyer's wishes.

DIRECT TRANSACTIONS WITH CONSUMERS.

Numerous mills which are located at terminal markets make their purchases under conditions similar to those affecting other buyers in these markets. When mills are located at secondary points, the shippers soon learn the nature of the weights to be expected from them. The chief objection to the practice of selling to the mills lies in their limited demand. The shipper, before he learns that his grain can not be used, frequently loses the opportunity to make a sale elsewhere. Direct transactions between country shippers and retailers or large consumers usually are confined to those located within a radius of a few hundred miles, such trade being considered highly profitable by those engaged in it, as the shipper and dealer divide between them the profit which otherwise would be made by

the middlemen. Objections to this method of trading are that the small shipper, of necessity, has but a limited amount of grain for sale, and the retailer or consumer is in the market only at infrequent intervals. Often, when the latter wishes to buy, the shipper may have nothing to sell, or vice versa. Then, too, the search for customers frequently entails far greater expense than the amount of profit paid to a middleman for this service.

COUNTRY TRACK BUYERS.

Country track buyers usually are located at central points in a shipping territory, where communication by telephone is established easily with numerous shippers. The track buyers purchase grain on track, selling it to terminal markets, millers, jobbers, retailers, or others wherever opportunity presents itself for profitable trading. The advantage of this method lies in the proximity of the buyer to the shipper, a condition materially hastening settlement of accounts and adjustment of disputes. Disadvantages incident to the employment of the country track buyer are (*a*) frequent inability to obtain official weights and inspection, a condition giving rise to occasional disputes, and (*b*) lack of storage facilities.

JOBBERS AND OTHER MIDDLEMEN.

The jobbers distribute grain to the retailers and consumers in carload lots from central points in consuming territory, usually without rehandling, although some have warehouses or elevators into which carload shipments from producing centers or from terminal markets are unloaded and reshipped in mixed cars. The advantages and disadvantages of the use of the jobber are similar to those cited in connection with the track buyer, with the exception that the latter is in close touch with the shipper, while the former is contiguous to the consumer. Instances where it is practicable and desirable to utilize the services of one or more of these agencies are numerous, but in some cases their use is needlessly multiplied, thus increasing to some extent the cost of handling the grain. Cases are occasionally found where the same car of grain has passed through the hands of several track buyers, terminal market dealers or jobbers, and others before finally reaching the consumer.

RELATIVE USE OF METHODS.

Data obtained in 1915 from a number of elevators in the surplus-grain States of the Middle West with regard to the disposition of their grain indicate that 17 per cent of the product from these houses was sold either to terminal markets, track buyers, retailers, or consumers in the same State as that in which the house was located; 25

per cent to interior terminals outside of their own State; 30 per cent to export terminals; 7 per cent direct to interior buyers, jobbers, retailers, and consumers in Eastern States; 1 per cent to interior buyers in the South; and 20 per cent direct to mills. The small percentage shipped to southern points is probably accounted for by the prevalence of the brokerage system in that section of the country and also by the fact that southern buyers usually purchase grain in bags, a condition impossible for most country elevators to fulfill, owing to lack of proper equipment.

PRICE PAID TO THE PRODUCER.

There are many factors which the country buyer must consider in establishing prices to be paid to the producer. If purchases are to be made by grade, prices must be fixed for the popular grade of each variety of grain handled.

BIDS RECEIVED BY COUNTRY ELEVATORS.

The dealer receives postal-card bids daily from terminal market dealers, track buyers, and others offering prices for stipulated grades of grain. Telegraph, telephone, and mail bids also are received from these sources at frequent intervals, together with offers from jobbers, brokers, retailers, and consumers. These bids, covering lots of definite size or grade, are so limited in character that they can not be sent out as generally as postal-card quotations. Quotations from the various markets are printed in the newspapers and daily market bulletins are published in the large terminal markets. Many dealers also subscribe to a service furnished by the telegraph companies, whereby they receive the quotations from one or more of the large terminal markets at frequent intervals during the day. This is commonly known as the "C N D" service. News-letters are issued by various commission houses, which contain information regarding the prices at which grain of various grades is selling in the markets, both for immediate and for future delivery, and frequently carry conjectural comments regarding the future trend of prices. From the information obtained from these sources the country buyer must decide what price is obtainable for his grain. The seller must know, in each instance, how his grades and weights compare with those in the market under consideration, as well as the proper amounts to deduct for brokerage, commissions, weighing, inspection, etc., and in the case of bids to arrive or cash prices paid for consigned grain at terminal markets he must be aware of the proper freight charges. The same freight rate does not always apply over all routes between the same points; hence in case the offer is for shipment via a certain route or for delivery on a specified

railroad the shipper must ascertain whether such routing or delivery is possible under the rate quoted.

PREMIUMS AND DISCOUNTS.

The establishing and issuing of price quotations from marketing centers is a broad subject, embracing some features that often lead to misunderstanding between the producer and the country-elevator manager and between the manager—especially one with little experience—and terminal market dealers. Price quotations, particularly as they appear in many newspapers, are often misleading and confusing. Some farmers note the top price and expect the local elevator to bid for their grain upon that basis. Frequently the top prices paid in large markets are only for a few cars of extra choice quality of grain, or, as sometimes happens, they represent a premium for a certain kind of grain of which the supply is limited and for which the demand is unusually keen. Thus on July 17, 1915, during the early movement of new wheat, local elevators in a certain country town were offering the farmers $1.10 per bushel for wheat. Track buyers, representing a large terminal market within shipping distance, were offering the local elevators $1.14 per bushel. The newspapers, however, appeared with large headlines proclaiming the fact that wheat was selling in this terminal market for $1.30. Freight rates from the country station to this terminal market were 4.2 cents per bushel. The farmer patrons of the country station concluded that the local elevators were buying their wheat at $1.10 and reselling it in the central market at a price of $1.30 per bushel, less freight. When the situation was analyzed it was found that the price of $1.30 was paid for a single car and that it was an unusual sale, the premium being due to the fact that several millers desired wheat of that particular variety. Owing to the light movement at this time, however, only one car was available, so competitive bidding forced the price to the abnormal level. If at that particular time there had been ten or fifteen cars of the same quality of wheat on the market, undoubtedly the price would have been lower. The country buyers were unable to base their price on premium quotations, because, in all probability, by the time their grain was marketed receipts would have increased materially and the price would have dropped to the normal level for cash grain. The $1.14 track bids offered to country dealers had taken this fact into consideration, as the bids were made for delivery within two weeks. Commission merchants in the central market published the high premium sale for the purpose of creating a favorable impression of that market among inexperienced country dealers and thereby securing larger consignments.

Frequently premium prices are paid by exporters who need grain to fill out a cargo destined for shipment upon a certain date. Also, as noted in the foregoing illustration, early in the crop year, the first cars of new grain to arrive in the markets are frequently sold at a large premium over prices offered for similar grain to arrive several weeks later. These premium prices are often published without explanation as "cash prices." Dealers forward representative samples of their grain to commission houses or other central market dealers early in the season and are advised that "if your grain were here today" it would be worth a certain price. If the country dealer bases his purchasing price on such information he is quite likely to discover that these early premiums have disappeared by the time his grain arrives, with resultant financial loss to him.

Sometimes a knowledge of discounts is as important as a knowledge of premiums. As a general rule, premiums are paid for grain of superior quality, while discounts are made for grain of "off" grade or inferior quality. When a large amount of high-grade grain is on the market usually little, if any, premium is received. Likewise if but little low-grade grain is on the market it may be disposed of at a slight discount under prevailing prices for good grain. If, however, a large amount of grain is of poor quality the discount is much more severe. Thus grain that under favorable circumstances would sell for 2 or 3 cents discount under the standard grade may be sold at a discount of from 10 to 15 cents when a large amount of grain of the same quality is on the market.

UNRELIABILITY OF PUBLISHED PRICE QUOTATIONS.

Local market news, particularly in cities where there is no general market, is sometimes inaccurate. In one instance, in a city of 65,000 inhabitants, under the general head "Grain, hay, and straw (wholesale)," a paper published a mill's price to farmers for wheat and a jobber's quotations to retailers and large consumers for corn, oats, hay, and mill feed. These latter prices were far from accurate, as the following parallel will indicate:

Commodity.	As published.	As actually quoted.
Corn ..... bushel..	$0.80	$0.55
Oats ..... do....	.38	.46
No. 1 timothy hay ..... ton....	10.00	13.00
No. 2 timothy hay ..... do....	10.00	12.00
Clover mixed hay ..... do....	10.00	11.00
Alfalfa hay ..... do....	10.00	15.00
Wheat bran ..... do....	24.00	22.00
Standard middlings ..... do....	28.00	25.00
White middlings ..... do....	28.00	29.00
Mixed feed ..... do....	30.00	27.00

When pressed for an explanation of these descrepancies, the market reporter of this paper stated that the wholesaler in question, when asked from time to time, had informed him over the telephone that no changes had occurred. In rebuttal, the wholesaler stated that the paper seldom inquired for price fluctuations and, when notified, failed to insert proper corrections. It is difficult to determine the precise responsibility in instances of this nature, but it undoubtedly is true that the publication of incorrect quotations is a source of annoyance both to the dealer and to the farmer. Dealers in large cities and in country towns should insist that newspapers publish correct quotations, with a specific heading stating the conditions under which they are compiled and the date of compilation.

FACTORS INFLUENCING PURCHASE PRICE.

After considering the information obtained from all sources, the buyer may decide to sell his grain for future delivery, although, as previously stated, this practice is not to be commended. Such sales, however, usually have no effect on the price paid to the producer for immediate delivery, for when the dealer is ready to buy grain to fill future contracts, competition usually compels him—when the price is higher—to pay its true worth at that time regardless of the price at which it was originally sold. If the market has declined, the dealer feels that the risk assumed entitles him to any additional profit he may obtain.

When all grain offered is purchased at a flat rate, that is, when one price is paid for all grain of one variety available, the average grade of the grain received must be determined, and this grade is taken into consideration when computing the selling price.

After the dealer has ascertained to his own satisfaction the price he will be able to obtain for the grain, a sufficient amount must be deducted to cover the cost of operation of his plant, together with a fair margin of profit. There are also many other aspects that the dealer must consider in establishing prices. For example, the price paid by his competitors must be taken into account, and he must be aware at all times of the amount of storage space at his disposal and the ability of the railroads to furnish cars when desired.

If, for any reason, the railroads are unable to provide cars as rapidly as needed, the shipper is confronted with the possibility of unfavorable market fluctuations. If shipment can not be effected, the resulting losses must be borne. However, it is usually possible either to sell futures as a hedge against such grain until the time when it can be moved, or to make a cash sale for shipment at a date far enough in advance to enable the dealer to obtain cars. Account must be taken of the condition and quality of the grain, proper con-

sideration being given to the possibility of its deterioration when shipped to distant points. The elevator operator must remember also that at some seasons of the year several days or even weeks may elapse before enough grain of any particular grade will be received to make a carload and an opinion must be formed of the prospective changes in the market during the interval. Many farmers dislike to bother with fractional prices. As terminal prices are quoted in eighths of a cent, and as freight rates are seldom figured in even cents per bushel, the country dealer frequently must decide whether or not he will add the fraction to his profit.

Many farmers and country dealers are influenced to too great an extent by local conditions when attempting to interpret market quotations and anticipate the probable trend of prices. In order to analyze the market and to forecast its bent, it is necessary to take country-wide and even world-wide conditions into consideration. The failure of a wheat crop in one or two counties of a State would hardly influence wheat prices generally to any appreciable extent, but a resident of such a community often fails to consider the relative importance of a local crop to the country's total production.

While all of the factors here enumerated enter into the establishment of the price by the country-elevator operator, in actual practice he usually bases his quotation on one or two of the most important elements, either the bids of a certain dealer or the fluctuations in the cash or future market at a certain terminal with which he is familiar. For example, a dealer finds that during a certain season the to arrive bid of a near-by terminal is the best market obtainable for his grain. Upon receipt of this bid freight charges are deducted, together with an amount deemed sufficient to cover the cost of plant operation and profit.

While most dealers employ this method of price making, good buyers are always observing, consciously or otherwise, all of the various influences here discussed. When an opportunity to "spring the price" presents itself, either by taking advantage of a better price from a consumer, retailer, or some other market, or by proper use of storage, the farmer usually receives the benefit of it, for the dealer is always eager to be in a position to pay better prices than his competitors and thereby handle the major portion of the grain produced in his vicinity.

After a dealer has determined the prices for the standard grades, the prices for grain of other grades offered must be given attention and the necessary amount to deduct from, or add to, the price of standard grades must be ascertained. "Cuts" on "off" grades vary widely and require deep study, and a dealer may suffer heavy losses if a considerable amount of off-grade grain is produced

in his neighborhood. In the hard winter wheat area these cuts usually conform to what is commonly known as the "export scale." This scale is used in adjusting the price of off-grade wheat in New Orleans, Galveston, Kansas City, and other large markets in the Southwest. Usually it is changed each year to meet the condition of the crop but always fixes certain stipulated deductions for each pound that the test weight of the wheat is under the standard and for certain other variations.

In many parts of the country dealers utilize blackboards for posting the prices paid for various grades of grain. This seems to be a wise practice, as the farmer is reasonably certain he is securing the

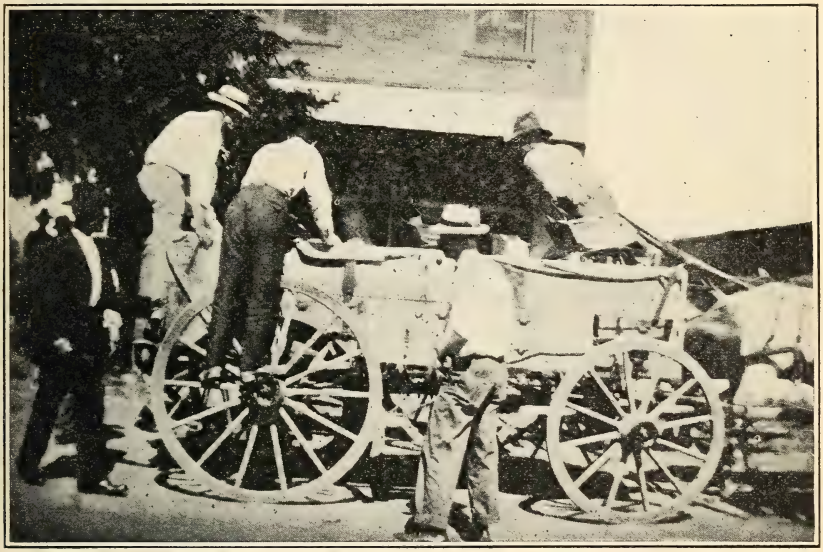

FIG. 3.—Scoop shovelers bidding for a wagonload of wheat.

top price the dealer is paying and the latter avoids the unpleasantness and loss of trade through farmers receiving, or believing that they receive, a lower price for their grain than do their neighbors.

TRANSIENT AND PERMANENT "SCOOP SHOVELERS."

In addition to line, independent, and farmers' elevators, there is another group of country grain purchasers known as "scoop shovelers," so called from the fact that they are not provided with the usual equipment for handling grain, but shovel it directly from the farmers' wagons into the cars. These buyers may be subdivided into two classes, transient and permanent. Of transient scoop shovelers there are two kinds: The first consists of retail dealers, liverymen, and others from consuming sections, who visit producing territory occasionally to buy a car or two of grain for their own use; and,

second, those who locate at large shipping points during the rush movement immediately after harvest and handle as much grain as possible while the movement is on, seeking other points when normal conditions are restored. An especially large number of this class of buyers frequent Texas and southern Oklahoma. A large percentage of the itinerant grain purchasers in this territory are cotton buyers who are accustomed to curb bidding. Little cotton is moved during the season of wheat harvesting in July and August, so many of the cotton buyers take a "flyer" in grain. Figure 3 shows four of these buyers bidding for a wagonload of wheat on the public square of a Texas town. When this picture was taken, at the height of the movement, nine scoop shovelers and one elevator company were engaged in buying wheat at this station.

The permanent scoop shovelers usually are farmers, merchants, or liverymen living in the community who seek this method of increasing their respective incomes.

METHODS OF BUSINESS.

Owing to the small amount of money invested, the cost of operating a scoop-shovel business is less than that of the regular dealer, who must maintain an expensive plant; but, as the scoop shoveler rarely possesses a thorough understanding of grain-marketing methods, it is seldom that his scope of influence is widely extended. He soon learns that unless a large volume of grain is handled profits necessarily must be meager. On the other hand, the transient buyers not only give regular dealers considerable trouble through loss of business but often cause an appreciable loss to the farmers. In many instances, having little capital (consequently little to lose), they offer prices in excess of market justifications with the hope that before shipments reach a terminal market prices will have advanced sufficiently to afford them a profit. When the market "breaks" against them some one else must bear the loss.

This undesirable state of affairs is created in several different ways. Sometimes an arrangement is effected with a local bank or a prominent merchant to assist in financing shipments by depositing with them whatever capital the buyer may possess. The scoop-shoveler's checks are then honored, the bank or merchant later receiving drafts, with bills of lading attached, when shipments are made, the presumption being that the buyer's small deposit will be sufficient to liquidate any possible losses brought about by market fluctuations. Often, however, the banker discovers this amount to be insufficient, on account of unusual market depression or unsatisfactory quality of the grain, or if for some other reason payment of the draft is refused at destination. At other times the buyer arranges with the farmer to pay for his grain upon receipt of the return remittance, but when the

farmer attempts collection the buyer has disappeared. Often the scoop shoveler may contract to purchase a farmer's grain at a certain figure. If the market declines before delivery is made, the farmer either finds the buyer has gone or that it is impossible for him to take the grain and pay for it. One instance was noted where a scoop shoveler, in contracting for grain from farmers for future delivery, proffered a written contract, which at first glance appeared binding, but further scrutiny disclosed in fine type in one corner these words: "This contract shall not be dated or closed until the above price or better can be paid." This statement meant that unless the price of grain advanced to a profitable point for the buyer before the grain was delivered the contract was worthless.

There are many honest scoop shovelers, including not only consumers or small dealers who come into producing territory occasionally, but also men of limited means who obtain their start in the grain business in this manner. The manager of one of the largest milling companies in the West at the present time made his entry into the grain business with a scoop shovel. For his own protection, however, the farmer should investigate carefully the responsibility of itinerant purchasing agents before selling his grain to them.

While the activities of the scoop shoveler occasionally causes marked losses both to regular dealers and to farmers, as well as to country bankers and merchants, at times his restraining influence upon the country dealer can not be denied. In fact, the manager of a line company operating a large number of country houses recently intimated there was little danger of his company ever seeking excessive margins, for whenever this was attempted scoop shovelers would immediately begin buying grain at each of the stations.

CONTRACTING WITH FARMERS FOR FUTURE DELIVERY.

It is the common practice of certain elevator managers to bargain with farmers for the future delivery of grain. In the ordinary course of events such bargains are entered into during the harvesting season, but at times an arrangement providing for the future delivery of grain is agreed upon several months before the grain is actually harvested. In one community it is said that two-thirds of the oat crop is disposed of in this manner soon after the seed is sown.

KINDS OF CONTRACTS.

There are two forms of contract in common use. The simplest and most common agreement is one in which the farmer agrees to deliver, on or before a certain date, for a stipulated price, the surplus grain produced upon his farm. This form of contract is sometimes

modified so that the understanding refers only to the grain produced on a certain number of acres, which is known as "contracting by the acre." In another form of agreement the seller undertakes to deliver to the purchaser a definite number of bushels, a proceeding commonly alluded to as "contracting by the bushel." As a rule, contracts for future delivery are mere verbal agreements, although written forms are not unusual. Rarely are any margins deposited by either party to insure actual fulfillment of the contract.

HAZARDS OF CONTRACTING FOR FUTURE DELIVERY.

The country grain dealers, as well as the farmers, are seldom in accord regarding the advisability of contracting for future delivery of grain. Many dealers condemn the practice because of the liability of misunderstanding between the dealer and the farmer. From the buyers' standpoint, most unpleasant experiences have resulted from contracting by the acre. It is alleged that some farmers seek to deliver more than the stipulated amount of grain in event of a drop in price, but withhold it, on the other hand, upon a rising market. Then, too, the farmers contend that a material drop in price evokes a disinclination upon the part of the dealers to accept the grain, or finds expression in an attempted discount from the contract price by claiming that the grain delivered does not meet the standard stipulated in the agreement. It would seem that some form of business practice could be devised that would reduce to a minimum the number of such cases.

Many difficulties are encountered in attempting to fulfill the terms of a contract, particularly when an interval has elapsed between the date of the contract and the time of delivery. Often a delayed harvest, accompanied by a prolonged rainy season, renders delivery at contract time an impossibility. When this condition exists it results in much confusion, for the country dealer in many instances has resold the grain by contract, the last purchaser disposing of it perhaps to an exporter desiring to fill a cargo. The failure, for whatever reason, on the part of the farmer to deliver the grain to the country elevator at the specified time interferes seriously with the proper fulfillment of the country grain dealer's previously incurred obligation with other grain merchants. Also, if delivery is not effected upon schedule time the buyer who is dependent upon grain bought for future delivery for the filling of his requirements must purchase the shortage in the open market, often at a marked advance in price. In this case, however, relief is afforded from financial loss by the infliction of a penalty upon the contracting party at fault. The latter, having purchased the grain for future delivery from a country dealer who has been unable to supply it when desired, there-

upon levies a similar penalty upon the elevator. The country dealer experiences more difficulty in shifting his loss upon the farmer, who usually is unwilling to submit to a discount for low-grade grain, or for inability to fulfill a contract. The aggrieved dealer is loath to invoke the aid of civil authorities, fearing the effect of such action upon future business. Of course, the farmer has no recourse, but he should take this matter into consideration when entering into an agreement for future delivery of his grain.

ADVANTAGES OF CONTRACTING FOR FUTURE DELIVERY.

The practice of purchasing grain from farmers for future delivery has certain desirable features both for dealer and for producer. The advantages for the dealer are (*a*) greater certainty of supply and (*b*) opportunity to sell for future delivery, which enables him to take advantage of any favorable price movement. The farmer, likewise, is at liberty to dispose of his product at any time which, in his judgment, is most propitious to his interests. Nevertheless it would seem that it would be to the advantage of both farmer and dealer if all future-delivery contracts were made in writing, each detail, such as the number of bushels involved, quality of grain, date of delivery, and possible premiums and discounts, clearly and concisely set forth, thereby avoiding the possibility of misunderstanding at any stage of the transaction. It has been suggested also that the welfare of all concerned might be promoted still further if a reasonable margin were posted to insure the good faith of the contracting parties. Inasmuch as this system is followed by members of boards of trade and exchanges in the making of future contracts, it would appear to be a desirable practice and a safeguarding of mutual interests.

STORING GRAIN FOR FARMERS.

Frequently the farmer does not market his surplus grain at the time of harvest. Sometimes he may hold it for a more favorable market, while at other times it may not be convenient to deliver it to the local elevator at harvest time, because of the rush of other important farm work.

After small grains have been harvested and after corn has been husked they may be stored on the farm or at the country elevator, or shipped to the central market and there stored in one of the public elevators. Many farms are not provided with suitable granaries, and unless the farmer desires to sell at harvest time he must store his grain either at the local elevator or at the terminal market. Very little grain is shipped from the farms to the central markets for storage.

STORAGE CHARGES.

Many country elevators provide storage for a limited amount of grain, while other elevator managers do not enter into this phase of the business, preferring to purchase the grain outright at the time of delivery. Many States have regulatory laws regarding the receiving, handling, and storage of grain. In almost all cases the law fixes the maximum charges that may be exacted. Usually the schedule of storage is based on 15-day periods. The schedules of rates may vary from 1 to 2 cents for the first 15 days or parts thereof and from one-quarter to one-half cent for each additional 15 days or part thereof. The variation in the rate prescribed by law in the various States is so great that no exact figures covering the grain-producing area can well be given. Sometimes a maximum charge is defined for continuous storage for a somewhat longer period of time. Thus, one State permits a maximum charge of 4 cents per bushel from the 15th day of November to the 15th day of the following May. Sometimes managers provide free storage for their patrons as long as storage room is available.

HAZARDS OF ELEVATOR STORAGE.

The matter of storing grain in country elevators for farmers is a subject that has received considerable attention from the grain trade, as well as from the farmers themselves. Several hazards are connected with the storing of grain at local elevators, both for the elevator manager and for the farmer, especially in the absence of laws regulating the business. From the standpoint of the elevator manager the principal objection to the practice is to be found in its interference with the daily buying and shipping business, since when the elevator is full of stored grain its use in receiving and loading out daily receipts is greatly impaired. Frequently managers with their houses filled with stored grain are forced to turn daily deliveries over to a competitor.

The practice of free storage usually has developed from severe competition between houses. One manager may attempt to extend his patronage by offering free storage. His competitor often is obliged to offer the same inducement to hold his trade.

The practice of free storage adds several items to the cost of operating the house. In the first place, the grain must be insured against loss by fire, which is an item of considerable expense. Also the manager of the house in almost all cases must bear the burden occasioned by shrinkage of the grain while in store. If a farmer delivers 1,000 bushels to the elevator for storage he expects to have 1,000 bushels returned to him, or to receive payment for that amount when sold.

The burden of insurance and the loss by shrinkage sometimes lead a manager to ship out the grain received for storage soon after delivery, selling it to the central market. In order to protect himself against price fluctuations he goes into the future market and purchases a hedge for a like amount. When the farmer informs him that he is ready to sell the grain, which the farmer supposes is in storage, the elevator manager closes out his hedge, pays the farmer the market price for the grain, and bears the cost of the hedging sale himself. By shipping out the stored grain, however, the manager not only has relieved himself of the expense of insurance and the loss by shrinkage, but he has also been enabled to use or to loan the farmer's money, thus profiting by the interest earnings.

Shipping out the grain delivered for storage is practiced also when a storage charge is made. In this case the elevator derives a profit from the storage charge in addition to the interest on the money received from the grain.

The hazard of storing grain in the country elevator, from the standpoint of the farmer, depends upon the degree of integrity and the financial standing of the elevator manager. Occasionally the grain dealer announces a business failure with limited resources and the farmers whose grain is supposed to be in store are the chief creditors. While such cases are not general, they have sometimes been so frequent as to result in the enactment of a State law placing the storage business under State supervision and requiring the elevator owner to give bond for the protection of his patrons.

The United States warehouse act, recently enacted, authorizes the Secretary of Agriculture to license warehouses for the storage of grain, flaxseed, cotton, tobacco, and wool for interstate or foreign commerce. This act is permissive only and no warehouse is required to be licensed. The act also authorizes the Secretary to inspect warehouses which are licensed under this law or which apply for license.

FARM STORAGE.

From the standpoint of the producer the logical place to store grain is on the farm. Several facts, however, must be considered in determining whether such a procedure is profitable. In the first place, it is necessary to provide suitable granaries and cribs, which will require an original outlay of capital upon which interest and depreciation must be considered. It is necessary also to consider natural shrinkage. The amount of shrinkage that may be expected will depend of course upon the nature of the storage, the condition, and maturity of the grain at the time of harvest, and also the length of time it is held in store. As a general rule the small grains may be expected to shrink from 1 to 3 per cent in weight, while the

shrinkage of corn will vary from 8 to 20 per cent, depending upon the moisture content at the time of harvest. With corn the greatest shrinkage occurs in the months of April and May. The loss by rodents and insects also must be considered, which in some cases, particularly with corn, frequently is relatively high. While the fire hazard is not great in farm storage houses, it is advisable to protect stored grain by insurance, particularly if the storage bins are connected with, or adjacent to, other farm buildings. Other items that must be considered are convenience of marketing, condition of roads at time of delivery, cost of labor, interest on the money value of the grain held in storage, the price at harvest time, and the probable price at some future date. It is necessary also to consider the loss that may be incurred by grain going out of condition while in store. Small grains when damp are likely to become musty or bin-burned. When small grains with high moisture content are put in store it is necessary to "handle" them—that is, the grain must be turned frequently to prevent heating and decomposition. In the elevators this is accomplished by transferring the grain from one bin to another or by drying. Corn, when immature and having a high moisture content, can not be stored safely even in the ear unless the crib is provided with ample ventilation and even then the chances of loss may be great. Most terminal elevators and some country houses are equipped with driers, which reduce the moisture content to a point at which the grain may be stored safely.

ESTIMATING PROBABLE FUTURE PRICES.

It is impossible, of course, to anticipate, with any degree of accuracy, the probable market value of grain at some future date, since market values fluctuate in response to conditions over which no one has control. Moreover, the influences are world-wide in their scope, and the results frequently can not be anticipated. The only guide that may be considered is the average values of the several grains during each month of the year for a period extending over several years. As a general rule, prices are lower at harvest time and gradually increase to the period of lighter receipts at central markets and until the probable yield of the forthcoming crop can be estimated with some degree of accuracy. For a 10-year period the price of corn has shown an average increase of 10 cents per bushel from the lowest point (January) to the highest point (August).[1] During the same period the average price of wheat has advanced about 12 cents per bushel from the lowest price (in August) to the highest point (in May), while oats show an average increase of 5 cents per bushel from the

[1] Burleson, W. L., and Allyn, O. M., Prices and shrinkage of farm grains, University of Illinois, Agricultural Experiment Station Bul. No. 183, 1915.

lowest (August) to the highest point (May). In the past the natural shrinkage in corn has been so great as to show little profit from storage, while oats and wheat, if a long-time average is taken into consideration, have been stored at a profit.

It should be remembered, however, that relatively low prices at harvest time are due to the fact that a large amount of grain is placed on the market at this time, thereby establishing an oversupply for immediate needs, overtaxing local elevators and transportation facilities, and congesting the central markets. If farmers generally withheld their surplus grain from the market at this time, it is quite likely that values would not decline to a point as low as is reached under present methods. Also if farmers generally held their grain until the month at which values are the greatest under present conditions, it is quite likely that prices would not reach as high a level. Probably ideal conditions would maintain and uniform prices would prevail if the grain were stored on the farm and placed on the market as it is needed for consumption. Under this ideal condition the lowest price would prevail at harvest time, with progressive increase in values until the next crop became available. Theoretically the increase in values would be in proportion to the cost of storage, or the "carrying charge." The obvious objection to this practice is that farmers would not release the grain as needed, but would withhold it from the market merely to cause a scarcity and thus force up the price.

One of the principal reasons why grain is now marketed in such large quantities at harvest is because of the necessity of obtaining cash to pay off previously incurred obligations and for operating expenses. It is likely that farm storage of grain will not be practiced generally until some system of credit, based on farm-stored grain, has been inaugurated. The matter of interest on borrowed money, based on stored grains, will not become an added item of expense because this item must be considered, whether available in cash or in the form of stored grain.

HANDLING GRAIN FOR FARMERS.

Occasionally elevator managers ship grain to the central market for the account of the producer. This procedure is not general, but its practice is increasing, particularly in the West Central States. The reason for the practice usually is to be found in the belief on the part of the farmer that the local buyer is exacting too much margin. The producer arrives at this conclusion from a study of price quotations from the central markets and a comparison with the prices offered by the local elevator. Sometimes the farmer is justified in objecting to the price offered by the country elevator. Frequently, however, this conclusion is reached because of a lack of

careful consideration of the factors causing the spread in price and because of unreliable newspaper reports. Frequently all of the facts regarding the market conditions are not available or are not correctly interpreted.

Many elevator managers raise the original price offered the farmer if he objects to it, often at their own financial loss. Other managers refuse to increase their bids, but offer to ship the grain on the farmer's account, usually making a charge of 2 cents per bushel for handling the grain through the elevator. The charge for handling through the elevator may or may not reimburse the elevator manager for the cost of the service. Sometimes the service is rendered free of charge. When the returns for the grain are received from the central market the entire amount, less the handling charge of 2 cents per bushel, is turned over to the farmer. Sometimes such transactions result in profit to the farmer, but quite as often they are disappointing.

The farmer who does not have a carload of grain to market at one time can not take advantage of this practice, because the freight and central market charges on less-than-carload lots would be prohibitive.

ADVANTAGE OF GROWING UNIFORM VARIETIES.

Grain is handled most economically through the country elevator when uniform varieties are produced in large amounts by the contributing territory. When this condition exists, the elevator manager is able to handle the grain on narrow margins which eventually result in a higher price level to the producer. In many sections of the country, however, several varieties and colors of the same kind of grain are produced and marketed at the country elevator. This is especially true in the wheat-growing region of Oklahoma and in States where white, yellow, and mixed corn and various colors of oats are produced.

When an elevator must handle two or three varieties of the same grain, more bins and capital are required than when uniformity prevails. Moreover, when different colors of the same sort of grain or, as in some sections, when barley, rye, kafir, and other grains are raised in limited quantities and are received at the elevator in small lots, it is necessary to hold the various grades until a carload is accumulated. Not only is supplementary bin space essential, but more capital is required to finance the business, because the elevator manager is forced to expend cash for grain upon its arrival and he is unable to dispose of it immediately and thus regain his capital for future use. Neither is he able to protect himself against price fluctuations by hedging, since the quantity of grain in store is not sufficient to form the basis for future contracts. The result is that the

elevator manager guards against price fluctuations and obtains an equitable rate of interest on the capital involved by purchasing the grain on a relatively wide margin, which means a correspondingly low price to the producer.

It would seem, therefore, that producers should seek to exert some cooperative effort to standardize the varieties, types, and color of grain produced in a community. Such an endeavor, if consummated, undoubtedly would yield satisfactory financial returns for the effort involved. It is quite likely that the standardization of the grain produced in a community would result in a reputation for uniform quality, which at times commands a premium over general market prices.

FARM AND ELEVATOR SCALES.

One of the causes of considerable misunderstanding between the elevator manager and the farmer is the use of unreliable scales. Elevator scales should be kept in good repair and tested frequently or checked up by comparison with standard weights. In some States the testing is done by an inspector employed by the State or the railroads, while in other places the work is performed by a man in the employ of the State Grain Dealers' Association. In both cases the inspector is subject to call by dealers, who are assessed a standard fee for services rendered. Some grain dealers, however, do not take advantage of the opportunity to ascertain the reliability of their scales.

IMPORTANCE OF ACCURATE ELEVATOR WEIGHTS.

Many dealers assume that their scales are correct, although they may not have been examined for several years. The scales should be located properly and when doubt exists regarding the accuracy of an elevator's weights, the scales should be tested every six months or at least once a year, before the heavy crop-moving season. Farmers may well inquire when and by whom the scales were last examined. If more interest were manifested in scale inspection and accurate weights generally, there is little doubt that elevator managers would give the subject more consideration.

LOSSES DUE TO INACCURATE SCALES.

The efficient manager, however, is always anxious to keep his scales in good repair and capable of giving accurate weights, because a business can not be conducted economically unless he can ascertain the exact amount of grain received and shipped out. Losses from inaccurate scales may fall upon the elevator as well

as the farmer, but it is alleged that some elevator operators employ the short-weight method of overcoming shrinkage losses. This is probably true, especially in the case of elevators owned by corporations or associations, where the directors do not understand that grain can not be handled through the elevator without some shrinkage, and the manager fears action on his bond in the event of discrepancies between in and out weights. Where all scales are accurate, shrinkage in handling grain may be determined by comparing the "in" weights with the "out" weights.

AID IN FILING CLAIMS.

It is imperative that the out weights be accurate, in order that positive knowledge of the exact weight of each car of grain may be had. It then becomes comparatively easy to establish a check upon the weights received at the central market and, in case of discrepancy, to afford a substantial basis upon which to file claims for losses incurred. The matter of loss in transit, together with the variation in weights at the country elevator and the central market, is a subject demanding careful study. At almost all terminal markets particular attention is paid to the accuracy of the scales, and when variation between shipping and receiving weights occurs the central market is prone to believe the out-weighing scales at the country point are unreliable. On account of the general reliability of terminal-market scales many buyers prefer to make purchases from the terminal market at a slightly additional cost. Some country dealers not only have their scales inspected frequently, but also supply the purchaser with an affidavit of their reliability. It seems likely that some uniform system of scale inspection and affidavit weight records will be installed eventually.

TESTING FARM SCALES.

The farmer should not neglect the testing of the farm scales, if he employs them to confirm elevator weights. Many misunderstandings and erroneous conclusions regarding business ethics of parties to a transaction are based on weights secured from farm or elevator scales the accuracy of which has not been verified for a considerable period of time.

Farmers may test the accuracy of their scales by securing ten or twenty 50-pound test weights. These are weighed first at the center of the scale platform. Additional tests should then be made to check the accuracy of the scale by recording the weight registered when the test weights are placed at each corner of the platform. To determine the accuracy of the scale still further the weight of a loaded wagon may be recorded, after which the test weights should

be placed on the platform and the loaded wagon and the test weights weighed together in order to determine whether the scale records accurately the additional 500 or 1,000 pounds. Pitless scales are likely to get out of adjustment unless they are placed on a very substantial foundation.

SUPPLY OF ELEVATORS.

The number of elevators required to handle the surplus grain of a community will depend upon the volume of grain offered for sale. The requisite number may depend also upon the method of marketing. If the surplus grain of a community is placed on the market in large quantities during a short period of time following the harvest, more elevators, or elevators of greater capacity, will be required than when the surplus grain is delivered more uniformly throughout the year. Also the number of elevators will depend to some extent upon the ability of the railroad to furnish cars when needed.

ECONOMIC LOSS FROM OVERBUILDING.

In some sections of the country there are more elevators than the volume of business will justify, some communities being supplied with 8 or 10 houses, when 2 or 3 would be adequate. It is unfortunate that in many places new elevators are still being added to an already overcrowded field. The criterion for determining whether or not additional facilities are needed should be the number of elevators serving a community in proportion to the volume of grain marketed and not the number of houses at any one shipping point. The erection of new houses at small stations between larger shipping points necessarily reduces the contributing territory of them all.

As stated earlier in this bulletin, one of the principal items entering into the economy of operating an elevator is the volume of the business transacted. As a general rule, the cost per bushel for handling decreases, as the volume increases, within certain limits. Therefore, as the number of houses serving a certain locality is augmented, the volume of business transacted by each house diminishes, while the cost per bushel for handling the surplus grain of the community through the local elevator is increased.

If too many elevators serve a community bad practices are likely to result. Difficulties arise regarding free storage, weights, dockage, or grades, and, speculation ensuing, the financial ruin of unsuccessful competitors is almost inevitable. If competition is too keen, short weights are sometimes introduced, or speculation is resorted to in an attempt to regain losses. Cases are cited where grain stored for farmers has been shipped out and sold, to be followed by

bankruptcy; or a fire has destroyed the house. There is a remarkably close correlation between the number of elevators serving a community and the fire ratio. An insurance company reports that in one State, noted for its oversupply of elevators, 42 fires occurred within a year; while in another equally prominent grain State, in which the supply of elevators is better proportioned to the demand, but two houses were lost by fire.

COST OF OPERATING A COUNTRY ELEVATOR.

Accurate information concerning the cost of operating an elevator is not easy to obtain. Many operators do not keep cost accounts; some make rough estimates, while some endeavor to keep accurate accounts; but in each of several hundred cases investigated by representatives of the Office of Markets and Rural Organization some item of the operating cost had been overlooked.

Figures were obtained from operators who had made an effort to ascertain the cost and from those who were willing to state their opinion. These estimates of cost of operating varied from one-quarter of 1 cent to 5 cents per bushel, the average being $1\frac{98}{100}$ cents for houses handling less than 200,000 bushels in 1914; $1\frac{28}{100}$ cents for houses handling over 200,000 bushels; or a general average of $1\frac{85}{100}$ cents. This variation in cost of handling follows about the same ratio in various sections of the country as the margin of profit, being largest in the East and South, decreasing as the central part of the grain belt is reached, but gradually increasing toward the North and West. Most of these concerns when attempting to figure the cost of operation consider only actual expenses, including office salaries, labor, fuel, power, telephone, telegraph, postage, travel, repairs, supplies, and insurance. Sometimes depreciation, together with interest on the investment in plant and working capital, is included, while a very few consider the loss through shrinkage. None were found, however, who attempted to ascertain the loss through overgrading in making purchases.

From the estimates obtained and from first-hand study it is evident that the items of actual expense are practically fixed for each elevator and vary slightly only as changes in the volume of grain handled necessitate the employment of additional low-priced labor and slight increases in the other items that are not nearly in proportion to the increase in the volume of business. Usually these items do not admit of any considerable reduction, although it is possible at times to reduce the amount of labor hire, as well as the insurance on the stock. Substantial reductions may frequently be made in the rate of insurance, both on plant and stock, by effecting inexpensive changes and providing proper fire-control equipment. If the insurance companies are consulted, advice usually is freely extended

with regard to these matters. Bills for fuel, light, and miscellaneous supplies, which include tools, oil, and waste, together with repairs, may be rendered less burdensome by proper attention.

Depreciation on the plant and interest on the investment also should be considered in figuring the cost of operation. When building a new plant it is wise to consider these items with relation to different methods of construction. The amount of necessary working capital is affected also by the method of doing business. If the grain is shipped and drafts drawn as rapidly as a carload of each grade is accumulated, very little capital is necessary; but if large quantities are held for any length of time, pending a more favorable market, or for any other reason, the amount required is increased greatly. For example, figuring interest at 6 per cent, to hold wheat costing $1 per bushel for 30 days involves an expense of one-half cent per bushel.

LOSS FROM SHRINKAGE.

As stated above, few dealers attempt to ascertain the shrinkage of grain in handling, although, on the basis of the few figures submitted, this item amounts to from four-tenths to six-tenths of a cent per bushel. The amount can be reduced considerably by proper precautions. It is a matter of common knowledge among elevator operators that grain can not be unloaded into an elevator or out, even under the most favorable conditions, without some shrinkage. If scales are incorrect, if elevator boots and spouting leaks, if the grain is improperly cleaned, or is damp when received and dries out subsequently, or if it is shipped in poorly-coopered cars that leak while in transit, this loss is increased. Scales should be examined from time to time, and spouts, elevators, and all other machinery should be inspected frequently.

When grain is to be cleaned, care should be exercised that the cleaning machinery is performing its proper functions, is equipped with proper screens, and that the blast from fans and aspirators is so regulated that the grain will be cleaned sufficiently to reach the desired grade without removing any grain of value. A number of cases were noted during the course of this investigation where, through the use of inadequate machinery, the use of too large or too small mesh screens, or an improperly directed blast or air from fans or aspirators, either the grain had not been cleaned sufficiently or a considerable amount of good grain had been sacrificed in the screenings. In the first instance the grade of the grain had not been improved and no adequate return would be received for the cost of cleaning, while in the second case good grain, unnecessarily removed, was sold with the screenings at a relatively low price, thus materially increasing the cost of cleaning.

When the grain is ready to load, care should be taken to have the cars in proper condition to carry the shipment to destination without leaking. The general condition of the car itself must first be considered. If this is satisfactory, all cracks or holes through which grain might leak must be stopped with boards, paper, or burlap. Careful attention must be given to the manner in which grain doors are inserted, that they may not, under the weight of the grain, shift their position or bulge at the top or bottom or where sections are joined. Detailed consideration has been paid to this subject by railroads, shippers, and receivers in recent years, with resulting improvement, but there is opportunity for further progress in this direction. Traffic managers at several of the principal grain receiving markets of the country state that a large percentage of the cars arriving at the present time are leaking and doubtless many others that show no evidence of leakage when standing on sidings at destination leak under the severe strain of road handling.

INCORRECT GRADING.

While nearly all operators of country elevators admitted considerable loss, caused by the difference found to exist between buying and selling grades, which, in some instances, was considered in fixing their margin of profit, not one has been interviewed who possessed definite figures on the loss from this source extending over any considerable length of time. Occasionally figures were obtained covering shipments for a short period which showed the loss to be from one-half to 3 cents per bushel, averaging about 1 cent. One shipper purchased four lots of damaged wheat of the 1915 crop from farmers, three of which tested, respectively, 48 pounds, damp and sprouted; 51½ pounds, damp and sprouted; and 53 pounds, damp and sprouted. These three lots were bought at a discount of 10 cents per bushel, while the fourth lot (which tested 58 pounds and had been exposed to rain on several occasions) was purchased without discount. The four lots were mixed and shipped to a terminal market where the mixture graded No. 4 and was taken on contract at a discount of 10 cents per bushel, resulting in a considerable loss to the country merchant.

At the request of the Department of Agriculture 50 samples of hard winter wheat were taken at an elevator during a period of two and one-half months at the beginning of the 1915 crop movement. This elevator bought wheat on a 59-pound test weight basis, with the deduction of 1 cent for the first pound under that weight and 1 cent for each additional one-half pound. A record was maintained of the test weight of the 50 loads as taken by the elevator and samples were sent to the Office of Markets and Rural Organization. Here the

test weight was determined. The amounts thus obtained varied from those at the elevator from five-tenths to 4 pounds, only one sample showing no variation, with an average loss of 1.23 pounds. Estimating the 50 loads at 60 bushels each, the total deduction, using the scale shown above, on the basis of the test weights as obtained by the elevator, would have been $59.40, while on the test weights obtained at this office it would have been $121.80—a loss to the elevator of $62.40, or 2.08 cents per bushel.

In addition to the loss from this source the elevator made no mention of reductions in grade for other reasons than a low test weight, although three samples were dark wheat, 14 dark and yellow, 16 yellow and dark, and 7 yellow. Two samples testing 57 pounds and grading No. 3 on that basis would probably have been graded "sample" on account of being musty; one sample testing 57 pounds would have graded No. 4 on account of being dirty and containing a large amount of cut grain and smut balls. One sample, testing 60 pounds, would have graded "sample" for the reason that it was smutty; another sample (56 pounds) was an almost pure Turkey wheat and should have commanded a premium. Still another sample was so soft that it is probable that it would have been graded red wheat, instead of hard, the price of the former being considerably lower at that time. It is possible that the elevator sustained no loss on account of these defects, as these were only occasional loads whose identity was lost by mixing with a large volume of other wheat, and, for the same reason, no premium could have been paid on the load of Turkey wheat, but it is probable that each load had its effect on the entire lot. If the poor wheat had been docked properly a more attractive price could have been paid for the better grades. Other instances without number could be cited of overgrading or undergrading, but these two are sufficient to indicate the tremendous loss both to dealers and producers from this cause.

There are several reasons for overgrading by the country elevators. Undoubtedly some of it is caused by faulty judgment and ignorance, but by far the greater part is due to the fear of losing customers. Many dealers admitted overgrading, claiming self-protection as the reason.

HAZARDS OF THE COUNTRY ELEVATOR BUSINESS.

The hazards of the country-elevator business include variation in crop yields, unfair competition, the use of inadequately constructed and equipped buildings, variation in grades, necessity of properly interpreting market information, contracting for future delivery, storage, car shortages, failure of sellers and buyers to observe contracts, and financial risks.

VARIATION IN CROP YIELDS.

In some localities, owing to climatic conditions or to the whims of growers, a large variation in the volume of grain marketed is shown from year to year. Sometimes a community producing enough grain to insure exceptional business one year will yield almost nothing the succeeding 12 months. The quality of the crop at harvest sometimes is so inferior that it is impossible for the dealers to market it with a certain profit. Some sections market practically their entire crop immediately after harvest, the balance of the year being spent in unprofitable leisure. In view of all these circumstances, when seeking a location, a dealer should be certain that there will be a sufficient volume of continuous business. He must weigh the possibility of keeping the house open part of the time or combining with his business some desirable side line.

INADEQUATE CONSTRUCTION AND EQUIPMENT OF ELEVATORS.

Many of the older country elevators and even some new houses are inefficient and poorly constructed. The loss through the use of improperly constructed cleaning machinery and inaccurate scales has been shown. Another handicap under which many elevators labor is the lack of sufficient wagon dumps, elevators, and bins to keep separate the various grades, which would expedite the handling of the grain. The power equipment should be considered carefully. Where it becomes necessary to have steam for drying, it probably is desirable to operate a steam plant, but otherwise the cost usually can be reduced by the use of an internal-combustion engine. At some places electric power can be had at a minimum cost.

UNCERTAINTY OF GRADES.

At the present time uniform grades have not been established for all grains, and for those that are not the dealer must be acquainted with the grades of each market which is accessible to him in order to place a certain lot of grain to the best advantage. Sometimes the quality of grain deteriorates in transit. It may become sour, musty, or heated from being confined in a practically air-tight car, it may be delayed in transit, or, after arrival at destination, some time may elapse before it reaches the unloading elevator. Possibly a month after the shipment of the grain the buyer finds it out of condition. Dealers are compelled to suffer the losses arising from this source, although when the delay in transit is excessive it is possible usually to recover from the railroad. Many of the exchanges have deemed it unjust to fix the responsibility for unloading delays arbitrarily upon the dealer, and have adopted regulations requiring buyers to call for reinspection within 24 to 48 hours after the arrival of the grain or to bear any ensuing loss.

INTERPRETING MARKET INFORMATION AND SELLING FOR FUTURE DELIVERY.

The dealer receives a vast amount of market information from many sources, and to market his grain advantageously he must be able to interpret these data shrewdly. He must decide whether to sell his grain on track, to arrive, or consign it. If he consigns or holds it in storage and hedges against his holdings by selling an equal quantity for future delivery, he must know where to hedge to best advantage, and assume the risk of variations between the cash and future prices.

Being constantly in contact with the markets he has ever before him the temptation to speculate, either by (1) selling cash grain for future delivery before it is purchased, (2) by holding his purchases without hedging against them, or (3) by dealing directly on the future market. It is only natural that a man who is daily studying market conditions should sometimes feel assured of his ability to forecast the future trend of price fluctuations and to speculate with a certain degree of intelligent judgment, but in most cases he discovers ultimately that his knowledge has its limitation. Conditions arise of whose possibility he was entirely unaware, or has failed to consider, which change the entire trend of prices. When cash grain has been sold he must depend on the farmer's delivery to fill the sale. If the market is rising, farmers naturally withhold their grain in the hope of obtaining better prices. The condition of the roads; stress of farm work, and other circumstances, may militate against deliveries. Should the speculator hold his grain at the elevator some difficulty may be encountered in disposing of it when desired, as mills and other users of cash grain are not inclined to buy freely on a rising market; while if the grain is consigned to a general market there may be a serious decline before its arrival.

RISKS IN STORING GRAIN.

The risks incident to storing grain for farmers, contracting with them for future delivery, and advancing money on grain purchased or in store have already been discussed. The dealer must also assume the risk of a car shortage rendering it impossible to ship grain at the desired moment, and possibly compelling him to cease buying because his elevator is filled to capacity. Possibility of deterioration of the grain in storage while awaiting the arrival of cars must be borne in mind. In case the dealer sells grain for future shipments he incurs the risk of buyers failing to fulfill the terms of their contracts. When the market has declined buyers are sometimes financially unable to take the grain, while others seek opportunity to avoid fulfilling their part of the contract by taking advantage of some technical point in its wording.

FINANCING THE BUSINESS.

Few operators of country elevators have sufficient capital of their own to operate their business and must depend to a considerable extent on outside assistance, which is obtained from several sources, such as local banking institutions, farmers, and commission merchants. In some instances the larger concerns in the Western States obtain the necessary funds from eastern banks or through "paper brokers," in this way reducing the interest rate from 8 or 10 to 5 or 6 per cent. The smaller dealers can not avail themselves of this practice, but in the eastern and southern portion of the grain belt there seems to be little difficulty in securing necessary funds from local bankers, although in some parts of the Southwest the rate of interest ranges from 8 to 12 per cent.

Sometimes local banks are unwilling to furnish the necessary funds, either because they lack sufficient capital or because of the uncertainty of the moral hazard. In these cases the country dealer is usually able to obtain the necessary accommodation from grain commission firms located at central markets. These firms act in the capacity of buffers, securing the money from the banks in the large cities at a rate of 5 or 6 per cent and subloaning it to the country elevators at the same or a slightly higher rate. As compensation for their trouble they receive not only the small difference in the interest rate but also most of the borrower's business. Frequently, one of the conditions under which the loan is made provides that the borrower must consign a certain proportion of the grain he ships (varying from 50 to 90 per cent) to the lender. In a few cases farmer members are leaving returns from their grain with the cooperative companies or loaning them other money; in this way they receive 6 per cent interest on funds on which they would obtain only 3 to 4 per cent at the local banks. But even with all these sources from which to draw needed funds, the country elevator operator at times finds himself unable to secure necessary capital, and either sustains large losses through inability to fill contracts or is compelled to sell his grain at a sacrifice in order to obtain money.

FURNISHING BAGS TO FARMERS.

In some sections dealers for many years have furnished the farmers with bags for their grain. Upon the approach of harvest the farmer may obtain the bags needed from a near-by dealer, whose hope of remuneration lies in the expectation of purchasing the farmer's grain. Sometimes, however, the farmer disposes of his grain to a rival dealer and the bags are widely scattered over that section. Sometimes, also, the farmer uses as many bags as may be required for the grain held for his own use. Many bags are thus lost and dam-

aged, and the dealer's cost of doing business is increased. Many dealers are opposed to this practice, and in most sections all have abandoned it, but places still remain where certain of the dealers refuse to do so for fear of losing trade.

FARMERS' COOPERATIVE ASSOCIATIONS.

The cooperative-elevator movement, which has been attended by both success and failure, has had a rapid development throughout the surplus grain producing territory. Not infrequently the failures have been caused by hasty and ill-advised action in organizing associations. Many farmers enter cooperative elevator associations without giving the matter careful and deliberate consideration. Hasty action is sometimes caused by enthusiasm engendered by professional organizers, who frequently urge the formation of an elevator association without taking into consideration the needs of the individual members and the facilities for grain marketing already available in the community. Erroneous information regarding the cost of operating a plant and the profit from the grain business is sometimes used in order to bring the enthusiasm of the producers to the point of effecting an organization. Associations which have been formed as a result of exaggerated statements regarding the profits that may be expected usually experience considerable difficulty in placing the business upon a successful basis. Not infrequently such efforts are attended by complete failure.

When the organization of a cooperative elevator association is contemplated, careful consideration should be given to the needs of the community for additional marketing facilities. Also definite information should be obtained regarding the volume of grain shipped from the station; usually an average of a 5-year period will furnish more reliable information than the shipments of a single year. If there are established elevator businesses already at the station, a conservative estimate should be made as to what percentage of the total volume of grain shipped from the market will be handled by the cooperative association. Usually the promotors of cooperative associations place the estimate too high. It should be remembered that the established plants will retain some of their former business, and that the volume available to the new association will be reduced accordingly.

After making conservative estimates of the probable number of bushels of grain that will be handled annually, the cost of operating the plant should be estimated. The discussion on page 34 of the cost of handling grain may be of assistance in arriving at a conservative estimate of the cost of operation. With the estimates of the volume of business and the cost of operation as a basis, some deductions may be made regarding the profitableness of the enterprise.

Whenever practicable, associations should purchase existing plants rather than construct new ones, thus avoiding duplication of facilities, with the resulting high cost of operation and reduced profits. In negotiating for the purchase of an old plant the association should secure the services of one or more experienced men to appraise the property.

As a general rule farmers should investigate fully the business circumstances which are to surround the new enterprise before affiliating themselves with the organization. Moreover, it is usually unwise to place too much confidence in what outsiders may say regarding the profits to be derived and the cost of operating a country elevator.

CONCLUSIONS.[1]

1. Price and other factors being equal, farmers should patronize houses remaining open throughout the entire year.

2. The producer of high-quality grain often receives less than it is worth in order that an equal price may be paid to a grower of grain of inferior quality.

3. The farmer who delivers clean, dry, sound grain should receive a premium over the price paid to his more careless competitor. Farmers who deliver grain of inferior quality should be willing to submit to a discount.

4. Under the present methods of distribution the middleman renders a service to the seller in locating the most favorable outlet for his grain and securing for the buyer grain of the quality desired. However, the number of middlemen may be increased to the point where their efforts become a burden and add needlessly to the cost of marketing.

5. The factors that must be considered in determining the price paid to the producer are so numerous and complicated as to require wide experience and good judgment. Under normal competitive conditions the farmer usually receives full market value for his grain.

6. Market quotations and predictions relating to the probable trend of prices as they appear in some newspapers and market-news letters are often unreliable and should not influence unduly the judgment of elevator managers or farmers.

7. While the "scoop-shoveler" is usually a disturbing element, often causing loss to farmers and others having business relations with him, it is undoubtedly true that he frequently acts as a restraining influence upon the country dealer.

[1] Much of the text of this bulletin is devoted to a discussion of methods of marketing at country points for the purpose of affording general information which does not lend itself to definite conclusions.

8. Contracts with farmers for future delivery of grain should be entered into only after the interests of both parties concerned are safeguarded by a written contract clearly and concisely setting forth all the details of agreement.

9. In order to determine whether it is profitable to store grain on the farm, it is necessary to consider the interest on the investment, interest on the grain in store, natural shrinkage and loss by rodents, convenience of marketing, condition of roads at time of delivery, price at harvest time, and the probable price at some future date.

10. In the past the natural shrinkage in corn has been so great as to show little profit from storage, while if a long-time average is taken into consideration, oats and wheat have been stored at a profit.

11. It is likely that the standardization of grain produced in a community would not only result in a reputation for uniform quality which at times may command a premium over general market prices, but also reduce the cost of handling grain through the local elevator.

12. Many misunderstandings and oftentimes erroneous conclusions regarding the business ethics of parties to a transaction are based on weights secured from farm or elevator scales, the accuracy of which has not been verified for a considerable period of time.

13. When many elevators serve a community bad practices are usually introduced into the business, which increase the cost of marketing the farmer's grain and depreciate the value of all houses in the town and surrounding territory. Cooperative associations, as well as independent dealers, who desire to enter the business should purchase existing plants if this is practicable rather than build new ones.

14. Losses from shrinkage and overgrading are usually ignored by country elevators. Managers should maintain a system of bookkeeping which shows accurately these as well as all other expenses, and a study of the results obtained should enable them to conduct their business in an economic and profitable manner.

15. Grain speculation is always hazardous, especially for those who are so situated that they obtain only a limited amount of information relative to the world's production and markets. The risk is usually greater when speculating with cash grain than in the future markets.

16. The management of a country elevator is a more complicated business undertaking than it would appear to be upon cursory examination. The business is attended by many hazards, all of which should be weighed in advance by those contemplating such activities.

17. When the organization of a cooperative-elevator association is contemplated, careful consideration should be given to the needs

of the community for additional marketing facilities. Usually it is unwise to place too much confidence in the statements made by outsiders regarding the profits to be derived and the cost of operating a country elevator. Farmers should investigate fully the business circumstances which are to surround the new enterprise before affiliating themselves with the proposed cooperative elevator association.

PUBLICATIONS OF THE UNITED STATES DEPARTMENT OF AGRICULTURE RELATING TO GRAIN MARKETING.

AVAILABLE FOR FREE DISTRIBUTION BY THE DEPARTMENT.

Acidity as a factor in determining the degree of soundness in corn. (Department Bulletin 102.)

A device for sampling grain, seeds, and other material. (Department Bulletin 287.)

A moisture tester for grain and other substances and how to use it. (Bureau of Plant Industry Circular 72.)

Improved apparatus for determining the test weight of grain, with a standard method of making the test. (Department Bulletin 374.)

The intrinsic values of grain, cottonseed, flour, and similar products, based on the dry-matter content. (Department Bulletin 472.)

Lumber accounting and opening the books in primary grain elevators. (Office of Markets and Rural Organization, Document 2.)

Patronage dividends in cooperative grain elevators. (Department Bulletin 371.)

A system of accounts for primary grain elevators. (Department Bulletin 362.)

Cooperative organization business methods. (Department Bulletin 178.)

Prices of wheat to producers in Kansas, etc. (U. S. 63d Congress, 3d session, House Document 1271.)

Rules and regulations of the Secretary of Agriculture under the U. S. Grain Standards Act, 1916. (Office of the Secretary, Circular 70.)

FOR SALE BY THE SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C.

Shrinkage of shelled corn while in transit. (Department Bulletin 48.) Price, 5 cents.

Grades for commercial corn. (Department Bulletin 168.) Price, 15 cents.

The shrinkage of corn in storage. (Bureau of Plant Industry Circular 74.) Price, 5 cents.

Office of Markets and Rural Organization Service and Regulatory Announcements under the U. S. grain standards act. Price, 5 cents.

ADDITIONAL COPIES
OF THIS PUBLICATION MAY BE PROCURED FROM
THE SUPERINTENDENT OF DOCUMENTS
GOVERNMENT PRINTING OFFICE
WASHINGTON, D. C.
AT
5 CENTS PER COPY

▽